

WHAT IS CLAIMED IS:

1. A fusion device for facilitating arthrodesis in the disc space between adjacent vertebrae, comprising:

an elongated body having a length and a first diameter at a first end sized to be greater than the space between the adjacent vertebrae;

said body having an outer surface with a pair of opposite cylindrical portions and a pair of substantially flat opposite side walls between said opposite cylindrical portions, said side walls extending along a substantial portion of said length of said body; and

external threads defined on said pair of opposite cylindrical portions of said outer surface and extending along substantially the entire length of said body.

2. The fusion device according to claim 1, wherein said body is tapered along a substantial portion of said length and includes a second diameter at a second end thereof that is greater than said first diameter.

3. The fusion device of claim 1, wherein:

said flat side walls terminate near said first end; and

said cylindrical portions and said threads are interrupted by said side walls and circumferentially continuous thereafter at said first end.

4. The fusion device of claim 3, wherein:

said body includes a second end opposite said first end; and

said flat side walls terminate at said second end.

5. The fusion device of claim 4, wherein said opposite side walls each define a notch at said second end configured to receive a driving tool for implanting said device.

6. The fusion device according to claim 1, wherein said body is formed of a porous biocompatible material to permit bone tissue ingrowth into the device.

7. The fusion device according to claim 6 wherein said material is a composite comprising an open-celled substrate having interconnected porosity, said substrate infiltrated with a metal.

8. The fusion device according to claim 7 wherein said substrate is a carbonaceous material.

9. The fusion device according to claim 8 wherein said substrate is a carbon foam.

10. The fusion device according to claim 7 wherein said metal is a group VB metal or an alloy of said group VB metal.

11. The fusion device according to claim 10 wherein said metal is tantalum.

12. A fusion device for facilitating arthrodesis in the disc space between adjacent vertebrae, comprising:

an elongated body having a length, a first diameter at a first end and a larger second diameter at a second end opposite said first end, said first and second diameters sized to be greater than the space between the adjacent vertebrae;

said body having an outer surface tapered from said first diameter to said second diameter with external threads defined thereon and extending substantially entirely along said length of said body.

13. The fusion device according to claim 12, wherein said body is formed of a porous biocompatible material to permit bone tissue ingrowth into the device.

14. The fusion device according to claim 13 wherein said material is a composite comprising an open-celled substrate having interconnected porosity, said substrate infiltrated with a metal.

15. The fusion device according to claim 14 wherein said substrate is a carbonaceous material.

16. The fusion device according to claim 15 wherein said substrate is a carbon foam.

17. The fusion device according to claim 14 wherein said metal is a group VB metal or an alloy of said group VB metal.

18. The fusion device according to claim 17 wherein said metal is tantalum.